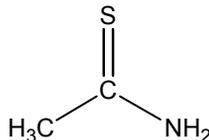


THIOACETAMIDE

CAS No. 62-55-5

First Listed in the *Third Annual Report on Carcinogens*



CARCINOGENICITY

Thioacetamide is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (IARC 1974, 1982). When administered in the diet, thioacetamide induced hepatocellular carcinomas in mice of both sexes, hepatocellular neoplasms in male rats, and bile duct or cholangiocellular neoplasms in rats of both sexes.

No adequate human studies of the relationship between exposure to thioacetamide and human cancer have been reported (IARC 1974).

PROPERTIES

Thioacetamide occurs as colorless or white leaflets that have a slight odor of mercaptans. It is soluble in water and ethanol, and sparingly soluble in ether. When heated to decomposition, it emits toxic fumes of nitrogen oxides and sulfur oxides. Thioacetamide is available as a laboratory grade containing 99% active ingredient. It forms compounds and sulfides with salts of heavy metals. It is hydrolyzed by acids or bases (Budavari *et al.* 1996, HSDB 2001).

USE

Thioacetamide has only one significant use, as a replacement for hydrogen sulfide in qualitative analyses (IARC 1974). Thioacetamide has also been used as an organic solvent in the leather, textile, and paper industries, as an accelerator in the vulcanization of buna rubber, and as a stabilizer of motor fuel (HSDB 2001). However, there is no evidence that it is currently used for any of these purposes.

PRODUCTION

Current production data for thioacetamide were not available. HSDB (2001) reported U.S. production in 1977 to be at least 1000 lb, and reported that there was no evidence of commercial production in 1982. The Chem Sources directory identified 20 current suppliers in the U.S. (Chem Sources 2001). The 1979 TSCA Inventory identified three producers and three importers of thioacetamide in 1977, with domestic production of 6,000 lb and imports of 5,500 lb (TSCA 1979). No export information was available. Commercial production of thioacetamide in the United States was first reported in 1921 (IARC 1974).

EXPOSURE

The primary routes of potential human exposure to thioacetamide are inhalation and dermal contact. Potential consumer exposure to thioacetamide residues could have occurred from contact with products where thioacetamide was used as a solvent. Potential occupational exposure may occur during production and packaging of the chemical as a laboratory reagent. Chemists and laboratory technicians are at greatest risk of possible exposure. The National Occupational Exposure Survey (1981-1983) indicated that 787 workers, including 593 women, potentially were exposed to thioacetamide (NIOSH 1984). This estimate was derived from observations of the actual use of the compound (100% of total observations). The National Occupational Hazard Survey, conducted by NIOSH from 1972 to 1974, estimated that 4,600 workers were possibly exposed to thioacetamide in the workplace (NIOSH 1976). EPA's Toxic Chemical Release Inventory (TRI) listed one industrial facility that produced, processed, or otherwise used thioacetamide in 1988 (TRI88 1990). The facilities reported releases of thioacetamide to the environment which were estimated to total 500 lb. On-site releases from three facilities in 1999 totaled eight lb (TRI99 2001).

REGULATIONS

EPA regulates thioacetamide under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and Superfund Amendments and Reauthorization Act (SARA). EPA has set the reportable quantity (RQ) under CERCLA at 10 lb. Thioacetamide is regulated as a hazardous constituent of waste under RCRA, and it is subject to reporting and record-keeping requirements under CERCLA, RCRA, and SARA.

OSHA regulates thioacetamide under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table 172.

REFERENCES

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TSCA. Toxic Substances Control Act, Chemical Substance Inventory, 1979: public record.